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December 31, 2008

VIA ECFS

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

**Re: Developing a Unified Intercarrier Compensation Regime, CC Docket
No. 01-92**

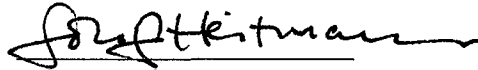
Dear Ms. Dortch:

On behalf of NuVox, I am filing for inclusion in the record of the above-captioned proceeding the attached Declaration of Michael Starkey and Olesya Denney, Ph.D. In their Declaration, Mr. Starkey and Dr. Denney respond to certain aspects of the Chairman's Draft Proposal wherein the Draft dismisses or ignores evidence previously submitted in this docket by NuVox. The Declaration also explains why the Draft's reliance on various materials previously submitted on behalf of AT&T and Sprint is misplaced. Finally, the Declaration provides additional analysis on cost inputs, including the traffic-sensitive costs of softswitches, to rebut certain conclusions contained in the Chairman's Draft.

Marlene H. Dortch
December 31, 2008
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This filing is being submitted electronically per the Commission's rules. Please place a copy of the filing in the records of the above-referenced proceedings and, if you have any concerns or questions, please direct them to the undersigned counsel.

Respectfully submitted,



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**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Developing a Unified Inter-carrier Compensation
Regime

) CC Docket No. 01-92
)
)
)

**DECLARATION OF

MICHAEL STARKEY
AND
OLESYA DENNEY, PH.D.**

December 30, 2008

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DECLARATION OF
MICHAEL STARKEY and OLESYA DENNEY, PH.D.

We, Michael Starkey and Olesya Denney, Ph.D., on oath, state and depose as follows:

I. INTRODUCTION

1. My name is Michael Starkey. My business address is 243 Dardenne Farms Drive, Cottleville, MO, 63304. I currently serve as the President of QSI Consulting, Inc.
2. My name is Olesya Denney. My business address is 6110 Cheshire Lane, N., Plymouth, MN, 55446. I am currently employed as a Senior Consultant at QSI Consulting, Inc.
3. This Declaration was prepared on behalf of NuVox to respond to certain aspects of the Chairman's Draft Proposal included as Appendix A to the Federal Communications Commission's ("FCC's" or "Commission's") November 5, 2008 Further Notice of Proposed Rulemaking ("FNPRM") in CC Docket No. 01-92.¹ In particular, we address herein a number of conclusions contained in the Chairman's Draft regarding costs associated with the transport and termination of traffic. Many of those conclusions are based upon erroneous analyses that ignore facts and evidence already contained in the record of this proceeding. The Chairman's Draft Proposal's discussion of near *de minimus* costs for transporting and terminating traffic appears to be

¹ Appendix A is referred to herein as the Chairman's Draft Proposal or Chairman's Draft.

the product of a results-driven analysis aimed at forcing extremely low transport and termination rates – regardless of data that show doing so will result in rates incapable of properly compensating terminating carriers for the investments and expenses they must incur to accommodate terminating traffic. In this Declaration, we draw attention to record evidence that contradicts and thus, makes unsustainable many conclusions regarding terminating carrier costs contained in the Chairman’s Draft Proposal.

II. THE CHAIRMAN’S DRAFT MISPLACES RELIANCE ON SPRINT NEXTEL’S FLAWED EVALUATION OF STATE COMMISSION-SET UNE RATES

4. Paragraph 254 of the Chairman’s Draft contains the conclusion that the unbundled network element (“UNE”) rate averages presented in a Sprint Nextel *ex parte*² as an “an upper bound on the rates that may result under a Faulhaber approach to incremental cost.”³ The Chairman’s Draft interprets cost evidence in the Sprint Nextel September 26 *ex parte* as supporting a national, weighted average price per minute for unbundled local switching of \$0.00058 per minute, and a national weighted average price per minute for common transport of \$0.00057.⁴ This interpretation is incorrect for a number of reasons, most notable of which is that the data Sprint Nextel supplied and

² Sprint Nextel September 26, 2008 *ex parte* filing in dockets CC No. 01-92 and WC No. 04-36 (“Sprint Nextel September 26 *ex parte*”).

³ FNPRM, Appendix A ¶ 254. The merits of the Chairman’s Draft’s Faulhaber-based approach to incremental cost and the propriety of using such an approach in this context are beyond the scope of this declaration. However, NuVox does not support the replacement of TELRIC with such a cost methodology applied exclusively to call termination.

⁴ FNPRM, Appendix A ¶ 254 (“Sprint Nextel reports that the national weighted average price per minute for unbundled local switching was \$0.00058 (with individual rates ranging from a low of \$0.00010 to a high of \$0.00727).”) (emphasis added).

upon which the Chairman's Draft relies is seriously flawed.⁵ Even before the Chairman's Draft was released for public comment, the record was clear that the data supplied and associated assertions offered by Sprint Nextel were seriously flawed. Inexplicably, the Chairman's Draft deliberately chose to rely on them anyway, even while acknowledging that NuVox had raised questions about the validity of the Sprint Nextel data and assertions.⁶

5. The most notable error in the Chairman's Draft related to Sprint Nextel's data is the conclusion that the weighted average rate for unbundled local switching is \$0.00058 per minute. This conclusion is erroneous because the \$0.00058 figure supplied by Sprint Nextel is a weighted average of unbundled tandem switching, rather than unbundled local switching. This fact is evident from Note 2 to the table in which Sprint Nextel presents its results,⁷ and from Attachment 1 to the Sprint Nextel *ex parte* which contains certain UNE rate data by state both for local switching and tandem switching, as well as for common transport.
6. In an October 27, 2008 *ex parte* submission – which the Chairman's Draft ignores – NuVox drew the Commission's attention to the fact that Sprint Nextel excluded local switching rates from its weighted average figure for

⁵ NuVox already explained these flaws to the Commission in two separate *ex parte* submissions filed in the above-captioned docket on October 2, 2008 and October 27, 2008.

⁶ See FNPRM, Appendix A, n.669.

⁷ This is evident from Note 2 to the table on p. 3 of the Sprint Nextel September 26 *ex parte* (the table indicates that the national weighted average rate of switching is \$0.00058).

switching.⁸ NuVox also noted that tandem switching costs – which are often incurred in performing termination functions – are almost without exception notably lower than local switching costs – which are always incurred in performing termination functions.⁹

7. Indeed, NuVox found this error and others in Sprint Nextel's September 26, 2008 *ex parte* to be so material that NuVox commissioned QSI to assess the flaws and to correct, where necessary, Sprint Nextel's calculations and data. On behalf of NuVox, QSI independently verified the underlying rate data and replicated Sprint Nextel's Attachment 1 using corrected data and calculating corrected nationwide weighted averages for local and tandem switching rates, as well as for common transport rates.¹⁰ NuVox presented the results of QSI's analysis in its October 27, 2008 *ex parte* submission.
8. Replicating with corrected data labels the same eight numerical values reported in the table on page 3 of the Sprint Nextel September 26 *ex parte* (national weighted averages, high, low and averages without outliers), QSI's analysis produced corrected weighted average value of \$0.00106 for unbundled local switching. However, this is only one component of the total transport and termination cost and does not alone constitute the "upper bound"

⁸ NuVox October 27, 2008 *ex parte* in dockets CC No. 01-92 and WC No. 04-36 ("NuVox October 27, 2008 *ex parte*"), at 2.

⁹ *Id.*

¹⁰ QSI's replication of Sprint Nextel's analysis showed that the value \$0.00058 (listed as "switching" on page 3 of the Sprint Nextel September 26, 2008 *ex parte*) is clearly a weighted average of UNE tandem switching rates contained in Attachment 1 to the Sprint Nextel September 26 *Ex Parte*. The weighted average of UNE local switching rates contained in the same attachment is \$0.00106.

the FCC was attempting to describe.¹¹ This is because the “transport and termination” of traffic originated by another carrier not only involves local switching at the terminating end office, but also often requires transport and tandem switching.¹² Thus, the proper method of constructing the “upper bound” on any cost methodology must involve a weighted average of all three of these individual cost components. More specifically, the “upper bound” that the Chairman’s Draft attempts to define using the Sprint Nextel data, should be the weighted average rate per minute for unbundled local switching, plus, for a certain percentage of the total minutes of use, the weighted average rate per minute for unbundled tandem switching and the weighted average rate per minute for common transport.

9. If we assume conservatively that 75% percent of traffic is routed through a tandem¹³ and apply this assumption to the weighted average of the corrected UNE-based rates identified in the Sprint Nextel September 27 *ex parte*, we get a nationwide composite UNE-based cost of transport and termination of \$0.0024 per minute.¹⁴ Note that, as NuVox explained in its October 27, 2008

¹¹ See 47 CFR §51.701 defining termination as the switching of traffic at the terminating carrier’s end office switch. The same rule defines transport as transmission and the necessary tandem switching of traffic from the interconnection point of the two carriers to the terminating carrier’s end office switch. Further, the observation that local (end office) switching is the integral component of “transport and termination” cost follows from the fact that the Chairman’s Draft Proposal’s discussion on this subject revolves around the forward-looking technologies and the traffic-sensitive cost of a switch.

¹² See 47 CFR §51.701. Transport would not be involved if the originating carrier delivers traffic to the terminating carrier’s end office.

¹³ This is a conservative assumption because traffic exchange and interconnection typically occur at the tandem. See, e.g., Sprint Nextel October 1, 2008 *ex parte* in dockets CC No. 01-92, WC No. 04-36 and CC 96-45, at 5 (explaining that “interconnecting at the access tandem location rather than at each end office subtending the tandem is the more efficient network configuration.”).

¹⁴ *Id.*

ex parte, this figure contains corrections for rate components that were missing, outdated, or otherwise wrong in Sprint Nextel's data.¹⁵

10. The NuVox October 27, 2008 *ex parte* also reminded the Commission that NuVox submitted QSI's analysis of state commissions' approved reciprocal compensation rates on October 2, 2008, showing that the nationwide weighted average composite reciprocal compensation rate is \$0.0027 per minute.¹⁶ While QSI's analysis of reciprocal compensation rates is a more direct (and therefore, more accurate) method of obtaining the estimated cost of transport and termination, it is notable that the national weighted average of state commission-set reciprocal compensation rates – \$0.0027 per minute – is reasonably close to the corrected Sprint Nextel UNE-based estimate of \$0.0024 per minute.
11. The bottom line is that a properly calculated “upper bound on the [transport and termination] rates that may result under a Faulhaber approach to incremental cost”¹⁷ relying upon state UNE rates – when corrected for the errors in the source (Sprint Nextel September 27 *ex parte*) – results in a composite weighted average \$0.0024 per minute. Thus, it is clear that the numbers cited in the Chairman's Proposed Draft at ¶ 254 – \$0.00058 switching and the \$0.00057 transport rates – grossly understate the so-called

¹⁵ NuVox October 27, 2008 *ex parte*, at 3.

¹⁶ See NuVox October 2, 2008 *ex parte* and the accompanying Declaration of Michael Starkey.

¹⁷ FNPRM, Appendix A ¶ 254.

“upper bound” and are simply erroneous for the reasons explained herein and in prior NuVox *ex parte* submissions.¹⁸

12. On this point, it is worth noting that the Chairman’s Draft acknowledges NuVox’s challenges to Sprint Nextel’s data and assertions in a cursory manner in footnote 669, indicating that while NuVox had raised the issue, “There is insufficient information in the two *ex parte* submissions for us to resolve the dispute...Carriers remain free to raise issues for consideration in the course of state proceedings.” While we respectfully disagree with the conclusion that there was insufficient information supplied – there was substantial analysis in NuVox’s October 27, 2008 *ex parte* submission that clearly showed the flaws in Sprint Nextel’s data discussed above, including a rate-by-rate comparison – far more troubling is the fact that the Chairman’s Draft at ¶ 254 cites its erroneous interpretation of the Sprint Nextel analysis as credible evidence despite NuVox’s detailed discussion to the contrary, even though, by admission, the drafters of the Chairman’s Draft Proposal did not resolve the dispute concerning the reliability of the evidence upon which they chose to rely.

III. THE SPRINT NEXTEL ANALYSIS DOES NOT SUPPORT A CONCLUSION THAT TRANSPORT AND TERMINATION LACK SCALE ECONOMIES

13. Notably, there are additional problems with the Chairman’s Draft’s reliance on the Sprint Nextel *ex parte* to support its conclusions regarding transport

¹⁸ Additional evidence that these numbers are grossly understated is found in footnote 710 of the Chairman’s Draft, which states that the national average TELRIC rates for transport and termination was \$0.00212 in 2004.

and termination costs. For example, at ¶ 254, the Chairman's Draft cites Sprint Nextel's conclusion that, based on its UNE rate survey, scale and scope economies do not significantly affect the cost of traffic termination. This conclusion is clearly erroneous. First, as explained above, Sprint Nextel inexplicably ignores local switching rates (a fundamental component of traffic termination) and instead looks only at tandem switching rates. As such, its analysis provides no relevant information on how local switching rates (typically the largest cost component of traffic termination) might fare with regard to scale and scope. Second, Sprint Nextel's "conclusion" relies on its overly simplistic observation that, for *some* "smaller" companies, rates were lower than rates in Texas, New York and California (SBC).¹⁹ This approach is overly simplistic because it ignores other important factors that drive differences in cost, such as the customer density. For example, Rhode Island – one of the states for which Sprint Nextel puts the ILEC into the category of "smaller companies" – is the second densest state in the country.²⁰ The high level of population density in Rhode Island no doubt affects costs incurred in that state.²¹ Further, a closer look at Sprint Nextel's selected set of "smaller" companies reveals that this list not at all representative. For example, Sprint Nextel observes that for Alabama, Rhode Island, Mississippi and South

¹⁹ Sprint Nextel September 26 *ex parte*, Attachment 1, at 3-4.

²⁰ Based on U.S. Census Data available at http://factfinder.census.gov/servlet/GCTTable?_bm=y&-ds_name=DEC_2000_SF1_U&-CONTEXT=gct&-mt_name=DEC_2000_SF1_U_GCTPH1_US9&-redoLog=false&-caller=geoselect&-geo_id=&-format=US-9|US-9S&-lang=en. New Jersey is the densest state (not counting the District of Columbia, which has the highest population density).

²¹ In this case, scale economies exist not only because of the overall size of the companies but also because dense customer base allows the company to realize scale economies by installing larger switches and larger interoffice transport facilities.

Carolina the combined rates are lower than those in California, New York and Texas. Apart from the fact that this observation is immediately contradicted if we use corrected UNE rates,²² even if Sprint Nextel's rates were accurate (which they are not) this observation still would be woefully insufficient to support a conclusion about scale economies because these states/companies simply do not properly represent "small states."²³ Specifically, in terms of ranking states by access lines with number 1 being the largest (California) and number 52 being the smallest (ACS Alaska), Alabama is number 25, South Carolina is number 27, Mississippi is number 29, and Rhode Island is number 43 in the Sprint Nextel *ex parte*.²⁴ In other words, while Rhode Island indeed belongs to the bottom third (the "small" group), Alabama, South Carolina and Mississippi are more properly classified as "mid-size" states. More importantly, Sprint Nextel's analysis ignores other small states. For example, besides Rhode Island there are 16 states/companies in the bottom third (the "small states") of the Sprint Nextel *ex parte* analysis, including Alaska (ACS)

²² As explained above, Sprint Nextel's calculation of composite rate is flawed because it fails to include local switching, uses outdated rates and omits several rate components of common transport, local and tandem switching such as the "per mile" transport rates and per minute shared trunk port rates. Note also that Sprint Nextel's other observation – that ACS Alaska's combined switching and transport rate are lower than SBC California – must be a result of a calculation error because ACS Alaska's combined rates are *higher* than SBC California's rates even if we use Sprint Nextel's methodology and numbers. Specifically, based on Attachment 1, ACS Alaska tandem switching and common transport rates equal to \$0.00178 (= \$0.00155 + \$0.00023), while SBC-California's tandem switching and common transport rates equal to \$0.001702 (= \$0.000453 + \$0.001249). If we correct this calculation to add local switching rates, ACS Alaska's combined rates become significantly higher than SBC-California's rates because ACS Alaska has a local switching rate of \$0.00203, while SBC-California has a zero per minute local switching rate. See Sprint Nextel September 26, 2008 *ex parte*, Attachment 1, at 1.

²³ We re-iterate that the use of data from "small states" is itself a proxy, and as discussed above in relation to population density, a poor proxy for small or large networks upon which a more rigorous analysis of scale economies would be measured. Likewise, Sprint Nextel does not explain how the data in its analysis in any way is relevant to economies of scope.

²⁴ Line counts are contained in Attachment 1 to the Sprint Nextel September 26, 2008 *ex parte* along with rate information.

and Alaska (ATU), Washington D.C., Delaware, Hawaii, Idaho, Maine, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, South Dakota, Vermont and Wyoming. All of these states have composite UNE-based transport and termination rates that are higher than California, New York and Texas (the three largest states picked by Sprint Nextel).²⁵ In other words, Sprint Nextel's conclusion that, based on its UNE rate survey, scale and scope economies do not significantly affect the cost of traffic termination is not in any way grounded in fact.

14. A more rigorous analysis of the relationship between the company size and UNE-based cost would use formal statistical tools that utilize the whole data set (all 52 state/company entities for which the rate data was provided in the Sprint Nextel *ex parte*). One such tool – the correlation coefficient – shows that the relationship between the company size and the level of UNE based transport and termination cost is indeed negative, which indicates (all else being equal) the presence of scale economies (the exact opposite result of

²⁵ Even if we use Sprint Nextel's flawed approach and numbers and include only tandem switching and transport rates (while omitting local switching rates), the result is as follows: All 16 states in the bottom third have combined rates higher than New York; 15 states (all but Delaware) have combined rates higher than Texas; and 12 states (all but Delaware, Hawaii, New Hampshire and Vermont) have rates higher than California.

Sprint Nextel's much smaller, less representative sample of "smaller states").²⁶

IV. THE DRAFT'S RELIANCE ON THE "THREE ECONOMISTS" IS MISPLACED

15. At ¶ 255, the Chairman's Draft cites a declaration by "three economists"²⁷ to provide "additional evidence concerning the incremental cost of terminating calls"²⁸ on modern networks – specifically, that "modern circuit switches are to a large extent non-traffic sensitive." There are at least two reasons why this "evidence" does not serve the intended purpose. First, the cited material concerns circuit switches, whereas the Chairman's Draft makes fairly clear that its "additional cost" standard should be calculated assuming 100% softswitch deployment.²⁹ As such, while we may disagree with specific conclusions reached by the "three economists" related to traffic sensitivity in circuit switches, this evidence has little, if any, relevance to determining the traffic-sensitive costs of softswitches.

²⁶ Specifically, a correlation coefficient between the natural logarithm of access lines and the natural logarithm of the combined rate (composed of local switching, tandem switching and common transport) is negative 0.53. Because a correlation coefficient is bounded between negative 1 and 1, with negative 1 being "perfect" negative relationship, plus 1 being "perfect" positive relationship and zero being "no relationship," the value "negative 0.53" suggests medium-strength negative relationship between access lines and the combined rates, or equivalently, the presence of certain scale economies. (The natural logarithm transformation was applied to capture the expected non-linear shape of the relationship between the per unit cost and company size.)

²⁷ The declaration was filed as Appendix A to Reply Comment of the Inter-carrier Compensation Forum in docket CC No. 01-92 July 27, 2005 Errata filing ("Three Economists' Declaration"). These economists are Richard N. Clarke of AT&T, Thomas J. Makarewicz of SBC and Brian K. Staihr of Sprint Nextel.

²⁸ FNPRM, Appendix A ¶ 255.

²⁹ FNPRM, Appendix A ¶ 272. As explained in the NuVox October 24, 2008 *ex parte*, NuVox does not agree that such an assumption would be realistic or proper.

16. Second, and more importantly, by referencing these statements on circuit switches, the Chairman's Draft highlights a fundamental lack of understanding of the key differences between modern softswitch and circuit switch platforms. For example, the "three economists" justify their contention that the costs of modern circuit switches "are not as sensitive to the number of minutes demanded by each line"³⁰ by explaining that "[h]uge portions of the digital switch's resources (and costs) are dedicated separately to individual lines."³¹ However, in reality, almost no softswitch resources are dedicated to individual lines. Thus, this claimed characteristic of circuit switches is not relevant evidence concerning how the modern packet switched network envisioned in the Chairman's Draft will operate.³²
17. NuVox highlighted its own experience with softswitches in its October 24, 2008 *ex parte*³³ explaining that there are no end-user dedicated facilities in softswitches like the line cards found in circuit switches,³⁴ and that softswitches are deployed to switch traffic from trunk to trunk (rather than from line to trunk or trunk to line), so that the majority of softswitch investment constitutes a *shared* facility.³⁵ This same concept is explained

³⁰ Three Economists' Declaration, at 21.

³¹ *Id.* (emphasis added).

³² A softswitch is basically a specialized router with ports (both in and out) that accommodate high capacity trunks. While some very small portion of those ports may be dedicated to specific customers or end users, for the most part, these ports are shared facilities that accommodate the shared (and jurisdictionally mixed) traffic needs of multiple users (*i.e.*, local, long distance, international, etc.).

³³ NuVox October 24, 2008 *ex parte* in docket CC No. 01-92 ("NuVox October 24, 2008 *ex parte*"), which included Declaration of August H. Ankum, Keith Coker and James D. Webber ("Ankum, Coker and Webber Declaration").

³⁴ Ankum, Coker and Webber Declaration, ¶ 24.

³⁵ *Id.* ¶ 26.

further and in more technical terms in the following excerpt from AT&T's letter to the modeling workgroup that was tasked with updating the HAI cost model in a recent Texas Commission universal service fund case:

A critical concept to consider from a modeling perspective with softswitching is the types of interfaces that are available on the softswitch. According to our preliminary research, softswitches do not have what are commonly referred to as analog interface cards. Analog interface cards are found in a circuit-based switch and are used to signal and provide power to POTS lines that are served exclusively over copper. According to our preliminary investigation, with a softswitch, all lines must be on a digital loop carrier or its equivalent to take the analog lines and place them in a format that will interface with the softswitch.³⁶

This excerpt explains that end users are not typically connected directly to a softswitch via dedicated facilities. Instead, some level of “traffic aggregation” must be accomplished in traditional line-based networks like those employed by the ILECs before that traffic can be switched effectively by the softswitch. In other words, all traffic coming to or from a softswitch is being carried on shared trunks (shared in the sense that trunk capacity is dynamically allocated to those users who are placing or receiving a call) and enters a switch via shared ports. In contrast to the point made by the “three economists,” in a circuit switched environment, traffic comes to and from end users via dedicated line card integrated directly into the switch. This is a fundamental difference between softswitches and modern digital circuit switches that invalidates any attempt to use “evidence” regarding circuit switches³⁷ to draw

³⁶ Texas PUC Project No. 34293, Letter by Mike Lieberman and Steve Turner on behalf of AT&T (July 10, 2007), at 1 (emphasis added).

³⁷ The word “evidence” is in quotes because the Three Economists’ Declaration’s discussion of circuit switch technology does not contain any real evidence (such as an in-depth analysis, real world examples or citations to sources), but is limited to several broad generic statements.

conclusions about the “traffic-sensitive” nature of modern networks that employ softswitches.

18. Interestingly, the “three economists” in their analysis also draw distinctions between “older” circuit switches and modern circuit switches, indicating that older circuit switches may have been more traffic-sensitive because, unlike modern circuit switches, they did not dedicate substantial resources to any individual customer. Said another way, the very reason modern circuit switches may not be as traffic-sensitive as older switches is also the reason why softswitches are more traffic-sensitive than modern circuit switches – *i.e.*, they do not dedicate capacity to individual users.³⁸ The “three economists” explain that “old” circuit switches:

...had relatively few resources dedicated to any particular line. The vast majority of their resources were common resources that could be commandeered by any particular line needing to place or receive a telephone call. Because of this preponderance of shared resources within the switch, the cost of telephone switching was largely traffic-sensitive.³⁹

Because the softswitches are similarly lacking resources dedicated to end users, the same logic and the same conclusion applies to softswitches – that is the conclusion that the costs of softswitches are largely traffic-sensitive.

³⁸ Indeed, after reading the “three economists” analysis and combining that information with our knowledge of softswitches, it appears that “modern circuit switches” may well have been an anomaly in the fact that such large portions of the modern circuit switch were “dedicated” to individual customer needs.

³⁹ Three Economists’ Declaration, at 20-21.

V. TRANSPORT COSTS ARE NOT ALWAYS DRIVEN BY FIBER COSTS, BUT OFTEN BY UNE AND SPECIAL ACCESS PRICES

19. At ¶ 256, the Chairman's Draft references another proposition from the Three Economists' Declaration – the proposition that relates to fiber optic transmission – and concludes that the incremental cost of adding transmission capacity is “likely orders of magnitude less than the forward-looking average cost of capacity, as estimated under TELRIC.”⁴⁰ This conclusion – which is, at best, premature – clearly is not grounded in any substantive analysis and does not account for realities of modern telecommunications markets. For example, the “three economists” limit their discussion to a few generic statements and their perspective appears limited to the networks of incumbent carriers. Specifically, they mention that “[g]iven the large cost of laying additional fiber versus the small (and steadily declining) cost of installing upgraded electronics, the method of choice for augmenting capacity is nearly always to install higher capacity electronics on the in-place fiber. Thus, once a fiber cable has been laid on a route, the costs of increasing its transmission capacity are relatively small, so extra minutes of demand result in very little incremental costs of transport.”⁴¹ It is worth noting that the “three economists” do not argue that fiber cable is placed *without regard to the expected traffic*. Instead, they reason that fiber cable is typically sized and installed with significant spare capacity to *accommodate future growth*, while electronics are sized more in line with current demand. While perhaps a

⁴⁰ FNPRM, Appendix A ¶ 256.

⁴¹ Three Economists' Declaration, at 21-22.

sound analysis for the limited purpose of understanding the economics of fiber-placement, this reasoning does not imply that the incremental cost of adding transmission capacity is “orders of magnitude less than the forward-looking average cost capacity, as estimated under TELRIC.”⁴²

20. There are several reasons for our conclusion. First, the Chairman’s Draft Proposal’s new costing methodology for transport and termination dictates that the relevant “increment of demand” is the total volume of traffic terminating to other carriers,⁴³ which essentially equates to about one-half the total traffic of many carriers (especially competing carriers who have little intra-network traffic).⁴⁴ Such a significant increment of traffic would almost certainly affect the carrier’s initial cable sizing decision, or the cost of the total installed fiber optic cable. As such, some portion of the original fiber-build would almost certainly be incremental to the terminating traffic at issue even under the Chairman’s Draft’s proposed “additional cost” standard.

21. Second, the “three economists” description of the cost of transmission is relevant only to cases where the transmission path (transport) is self-provisioned. In reality, many carriers lease fiber optic transport from other carriers (which they do because it is more efficient than building their own

⁴² FNPRM, Appendix A ¶ 256.

⁴³ *Id.* ¶ 271.

⁴⁴ This approximation is most evident for smaller carriers for which only a small portion of traffic is “intra-company.” However, larger carriers would also experience a significant increase in total traffic if traffic terminating from other carriers is “added” because they tend to have more terminating traffic compared to originating traffic (because they serve more urban areas where business are concentrated). In any case, the addition of “traffic terminating from other carriers” would represent a significant increase compared to the universe in which only originating traffic and intra-company terminating traffic exist.

facilities),⁴⁵ and the prices for this leased fiber optic transport undoubtedly vary with the ordered capacity. As an example, if the addition of “traffic terminating from other carriers” necessitates an upgrade in leased transport from the capacity of one DS3 to the capacity of two DS3s (a common occurrence), the incremental cost of the leasing carrier would essentially double – even though the owner of the underlying fiber-optic facilities may not need to physically augment the existing fiber cable (the point made by the “three economists”). In fact, if the addition of a leased DS3 in the above example is necessary on a transport route that is exempt from the UNE transport obligations under the FCC’s current unbundling rules, the leasing CLEC would likely be buying additional DS3 transport at the ILEC special access rates,⁴⁶ meaning that the additional costs faced by the CLEC are likely to exceed TELRIC cost by a substantial amount. It is inescapable that these increased costs on the part of the CLEC are “incremental” under either the TELRIC or the Chairman’s Draft’s proposed “additional cost standard” and that they are completely ignored in the Chairman’s Draft which suggests that “...extra minutes of demand result in very little incremental costs.”⁴⁷ This appears to be one of many instances where the Chairman’s Draft Proposal ignores network realities faced by nearly any carrier other than AT&T,

⁴⁵ Situations where a terminating carrier leases transport from another carrier include CLECs leases from the ILECs under UNE and special access regimes, CLEC leases from other non-ILEC providers of fiber optic transport and wireless carriers’ leases.

⁴⁶ This is the reality of modern telecommunications market place. *See, e.g.*, Covad Communications Group and XO Communications November 8, 2007 *ex parte* in WC Docket No. 06-172 (Verizon forbearance docket) quantifying the difference between special access and UNE prices.

⁴⁷ FNPRM, Appendix A ¶251.

Verizon or Qwest. Therefore, the Chairman's Draft Proposal's suggestion that the incremental cost of adding transmission (transport) capacity is likely orders of magnitude less than TELRIC cost is incorrect because it ignores, among other things, the additional cost of increased transmission capacity faced by CLECs and other carriers that do not self-provision the entirety of their transport capacity.⁴⁸

VI. THE CHAIRMAN'S DRAFT ERRS IN RELYING UPON AT&T *EX PARTE* RELATED TO SOFTSWITCHES AND IGNORES IMPORTANT CONTRADICTIONARY INFORMATION

22. At ¶¶ 257-259, the Chairman's Draft addresses AT&T's October 4, 2008 *ex parte*⁴⁹ in which AT&T attempted to estimate the per minute termination cost using a modern softswitch and the subsequent critique of that submission by NuVox⁵⁰ and Windstream.⁵¹ The Chairman's Draft concludes, based upon AT&T's analysis, that the incremental traffic-sensitive costs of modern softswitches are likely to be significantly lower than those of circuit switches

⁴⁸ We anticipate that some might respond to this notion of leased transport by arguing that only the forward looking costs of the underlying carrier (*i.e.*, the fiber provider) are relevant under the newly (yet imperfectly) defined "additional cost" standard. We would strongly disagree. Forward looking costs equate to efficiently incurred costs assuming use of the most technologically advanced network architecture to meet market demand. Carriers who do not own fiber optic facilities in certain areas will find their most efficient, least cost alternative to be leasing necessary capacity from another provider when the demand does not justify building their own facilities. While it could be argued that they might instead construct and use their own fiber facilities, such an outlay would necessarily be more expensive than the leasing option or rational market participants would undertake this strategy - and we know that in many circumstances they do not. As such, lease expenses incurred by carriers for purposes of terminating traffic (whether UNE rates or special access rates) are their least cost, forward looking direct costs of the necessary transport capacity.

⁴⁹ AT&T October 13, 2008 *ex parte* in CC Docket No. 01-92, WC Docket No. 005-337, CC Docket No. 96-45, WC Docket No. 99-68, WC Docket No. 07-135 ("AT&T October 13, 2008 *ex parte*").

⁵⁰ NuVox October 24, 2008 *ex parte* (including the Ankum, Coker and Webber Declaration).

⁵¹ Windstream October 27, 2008 *ex parte* in CC Docket No. 01-92, WC Docket No. 005-337, CC Docket No. 96-45, WC Docket No. 06-122, WC Docket No. 96-98, WC Docket No. 08-152, WC Docket No. 07-135 ("Windstream October 27, 2008 *ex parte*").

and possibly zero.⁵² It is important to note that, while the Chairman’s Draft correctly observes that the AT&T *ex parte* did not attempt to estimate incremental costs of traffic termination,⁵³ the Chairman’s Draft nonetheless draws its conclusion identified above from observations inspired by the AT&T *ex parte*: *i.e.*, that both the (a) per line investment and the (b) percent traffic-sensitive cost are substantially lower for softswitches as compared to circuit switches.⁵⁴ As explained below, and as NuVox has shown previously,⁵⁵ both of these claims are unfounded. And, importantly, neither AT&T, nor the Chairman’s Draft adequately rebuts NuVox’s criticism.

A. **THE AT&T EX PARTE OVERSTATES THE DIFFERENCE IN “PER LINE INVESTMENT” BETWEEN CIRCUIT SWITCHES AND SOFTSWITCHES**

23. Regarding AT&T’s first claim that the per line investment is dramatically lower for softswitches compared to circuit switches, NuVox’s October 24, 2008 *ex parte* explains that AT&T’s “low estimate” (\$34) was a poor estimate of softswitch costs in the U.S. because it was based on generic world-wide sales data and because these data included only the cost of the soft-switch/router itself, and likewise excluded numerous other pieces of equipment such as call control and peripheral equipment needed to accommodate voice traffic (which must be included to arrive at an “apples-to-

⁵² FNPRM, Appendix A ¶ 257.

⁵³ *Id.* ¶ 259.

⁵⁴ *Id.* ¶ 257.

⁵⁵ NuVox October 24, 2008 *ex parte*.

apples” comparison with circuit switches).⁵⁶ To further demonstrate why AT&T’s low estimate was unreliable, NuVox provided a per line investment estimate derived from its own softswitch purchases which was significantly higher than AT&T’s figure.⁵⁷ Neither the Chairman’s Draft, nor AT&T’s response *ex parte*⁵⁸ rebutted the NuVox investment estimate. In other words, even though AT&T’s estimate was based upon an accumulation of unrelated advertising material, public statements and back-of-the-envelope mathematics, and NuVox’s data was based upon what it actually pays for softswitch equipment, the Chairman’s Draft inexplicably relies on AT&T’s estimated values rather than actual real-world values provided by NuVox.

24. Further, AT&T’s “high estimate” of the per line softswitch investment (\$80) was based on a historical investment in Class 5 switches that was adjusted down in two steps. AT&T’s first step was to apply an assumed price index reduction to convert historical circuit switch investment to investments more likely to be required in today’s market. AT&T’s step 2 was to reduce the per line investment even further by assuming a 20% savings for a softswitch over a circuit switch.⁵⁹ NuVox’s October 24, 2008 *ex parte* pointed to a number of errors in this calculation, including a typographical error and the fact that AT&T’s assumed price index (3% annual reduction) had no support and

⁵⁶ *Id.*, Ankum, Coker and Webber Declaration ¶ 16.

⁵⁷ *Id.*

⁵⁸ AT&T’s October 28, 2008 *ex parte* in CC Docket No. 01-92, WC Docket No. 005-337, CC Docket No. 96-45, WC Docket No. 99-68, WC Docket No. 07-135 (“AT&T October 28, 2008 *ex parte*”)

⁵⁹ AT&T October 13, 2008 *ex parte*, at 2-3.

contradicted with actual data.⁶⁰ After correcting for these errors, the “high estimate” became \$99 – a value not substantially different than circuit switched investment per line - instead of the \$80 initially identified by AT&T.⁶¹

25. AT&T’s response *ex parte* acknowledged the typographical error, but insisted that the price index it assumed in its calculations was correct. In support of its assertion, AT&T provided a reference document relevant to the price index it used.⁶² AT&T’s Response *ex parte* refers to its support documentation as a “Federal Reserve Board Survey.” However, closer examination of the AT&T document makes plain that it is *not* a Federal Reserve Board Survey. In fact, the title page of the document disassociates itself from the Federal Reserve Board and even states “Preliminary and not for quotation” (emphasis added).⁶³ On a more substantive level, the price index that AT&T takes from this research paper is for “wireline switching” (Table 4), which includes, besides central office switching, enterprise voice switching (PBX/KTS/VOIP) and data networking (router, switch, hub, etc.).⁶⁴ In other words, this index measures equipment price changes *caused by the adoption of IP telephony*,

⁶⁰ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration ¶ 14.

⁶¹ *Id.* ¶ 15.

⁶² AT&T October 28, 2008 *ex parte*, at 2 (footnote 2 provides the following hyperlink to this source: <http://www.nber.org/~confer/2007/si2007/PRCR/byrne.pdf>).

⁶³ The title page for this document states as follows: “Prices for Communications Equipment: Updating and Revisiting the Record by David M. Byrne and Carol A. Corrado, Federal Reserve Board, July 9, 2007, Preliminary and not for quotation ... The views expressed in this paper are those of the authors and do not necessarily represent those of the Board of Governors of the Federal Reserve System or other members of its staff.”

⁶⁴ *See id.*, at Tables 1, 3 and 4.

meaning that this index already accounts for the cost savings that softswitches bring compared to circuit switches – the intent of AT&T’s second step in its process where it further discounts prices by 20%. As such, combining this index with the additional 20% reduction applied by AT&T results in a *double-counting* of the alleged cost savings.

26. NuVox’s October 24, 2008 *ex parte* also pointed out that AT&T’s assumed 20% cost savings for softswitches over circuit switches was based on manufacturers’ advertising claims that cannot be considered objective and that contradict NuVox’s actual experience.⁶⁵ AT&T’s response *ex parte* attempts to rebut this statement by providing a reference to an “analyst” study, according to which *power expense* savings for a softswitch are 90% compared to a circuit switch.⁶⁶ The title page of this “analyst study” states that it was prepared on behalf of softswitch manufacturer Alcatel-Lucent thus revealing that it is not a significant improvement over the manufacturers’ claims on which AT&T’s original *ex parte* relied. Nonetheless, it is clear that the power consumption savings estimated in the underlying paper – the 90% number that AT&T cites – is a measure of a very narrow category of cost (*i.e.*, power usage), while AT&T uses that figure to make a very broad assumption, *i.e.*, its assumed percentage savings of *total investment cost*. In other words, the documentation provided by AT&T in support of its additional 20% reduction (which we have already explained is duplicative), does little to support the

⁶⁵ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration ¶ 15.

⁶⁶ The source is given in footnote 6 to the AT&T October 28, 2008 *ex parte* and contains the following link: http://downloads.lightreading.com/wplib/alcatellucent/ALU_Ntwk_Transform_wp.pdf.

adjustment it made, indeed, it makes clear that AT&T is unreasonably extrapolating a claimed reduction in power savings to a similar reduction in overall switching investment.

27. To summarize, while NuVox has put real information in the record about its actual softswitch costs, AT&T chose not to rely on its own experience in purchasing softswitches (data it undoubtedly has and decided not to use), but rather fabricated investment numbers from varying and contradictory sources. Therefore, AT&T's per line investment estimates simply cannot be considered reliable evidence, especially in the face of hard data provided by NuVox that provides a very contradictory picture.

B. THE CHAIRMAN'S DRAFT PROPOSAL'S CONCLUSION THAT THE PERCENTAGE OF TRAFFIC-SENSITIVE COSTS IS LOW FOR SOFTSWITCHES IS UNSUPPORTED

28. We turn now to the second conclusion in the Chairman's Draft drawn from the AT&T *ex parte*, i.e., that the percentage of traffic-sensitive cost is lower for softswitches than for circuit switches. First, it is important to note that the AT&T *ex parte* did not explicitly compare softswitches with circuit switches. The AT&T *ex parte* simply assumed that 20% of softswitch costs are traffic-sensitive, referencing an AT&T filing in a Michigan case that addressed switching costs for small ILECs.⁶⁷ NuVox's October 24, 2008 *ex parte* pointed out that the referenced AT&T filing in Michigan actually proposed a

⁶⁷ Michigan Public Service Commission ("Michigan PSC") case U-14781 (the case that addressed TELRIC cost of Michigan Exchange Carrier Association ("MECA")).

50% (not 20%) estimate for the traffic-sensitive portion of softswitch costs.⁶⁸

AT&T responded that, while its witness in Michigan found that roughly 20% of cost was completely usage-driven (“traffic-sensitive”) and another 20% – completely line-driven (“non-traffic-sensitive”), the remaining 60% was “then considered to be fixed cost or cost that were shared between line and usage.”⁶⁹

This response is misleading. A review of the AT&T Michigan filing that contained the underlying analysis⁷⁰ shows that this conclusion was based on a regression model that utilized vendor information in an attempt to establish the relationship between total switch investment (dependent variable), and usage, lines and trunk counts (explanatory variables). The main drawback of this study is that vendor information used in this regression contained a very narrow data range. For example, the data assumed that the switch would support up to 8,000 lines. In contrast, real-life switches may be a magnitude larger.⁷¹ Because the dependent variable – total switch investment – was a sum of investment for base configuration (investment that supports certain base usage and lines, and also includes “fixed investment”) and additional

⁶⁸ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration ¶ 21.

⁶⁹ AT&T October 28, 2008 *ex parte*, at 4.

⁷⁰ Michigan PSC case U-14781, December 3, 2007 Affidavit of Dr. Kent A. Currie in Support of AT&T Michigan’s Objections to the October 19, 2007 MECA Compliance Filing (“Currie Affidavit,” see ¶¶ 56-59 and Schedule 4) available at <http://efile.mpsc.cis.state.mi.us/efile/docs/14781/0190.pdf>. Note that this Schedule is confidential, and only the non-cost data (line, trunk counts and busy hour measures) are available publicly.

⁷¹ For example, in its Tenth Report and Order (*Federal-State Joint Board on Universal Service, Forward-Looking Mechanism for High Cost Support for Non- Rural LECs*, CC Docket Nos. 96-45, 97-10, Tenth Report and Order, 14 FCC Rcd 20156 (1999)) the Commission adopted the maximum switch capacity of 80,000 lines, noting that some actual switches served more than 100,000 lines. See Tenth Report and Order, ¶ 329 and n.1060.

investment that was traffic-sensitive,⁷² the narrow data range does not properly reveal the relationship between traffic and total investment. Indeed, it likely masks the more relevant relationship in larger switches that will be used in the network. To make a simple analogy, if the goal is to show that seasonal variations in weather exist, analyzing data solely for the month of July is unlikely to provide results from which reasonable conclusions related to seasonality can be drawn. The same concept applies to the AT&T Michigan analysis. Finding that a small percentage of softswitch cost is traffic-sensitive based on a very narrow data set that does not capture significant variations in traffic – variations such as those required under the Chairman’s Draft Proposal’s proposed definition of “increment of demand” as the total volume of traffic terminating to other carriers – simply does not provide credible evidence upon which conclusions related to traffic-sensitivity can be drawn.⁷³ In other words, AT&T’s assumption that only 20% of softswitch cost is traffic-sensitive is not based upon reliable data, yet it is the primary data the Chairman’s Draft points to as evidence supporting its conclusion that “additional costs” based upon softswitch investment will be substantially lower than results under the FCC’s TELRIC standard.

29. At ¶ 259, the Chairman’s Draft questions NuVox’s statement that the absence of line cards in softswitches is evidence that most softswitch costs are traffic-sensitive. The Chairman’s Draft’s reasoning is that there are other large fixed

⁷² Currie Declaration ¶¶ 44 and 50 observes that additional Session Border Controllers and Session Initiation Protocol stations are needed as traffic increases.

⁷³ FNPRM, Appendix A ¶ 271.

costs that are not related to line ports and that “[s]ince softswitches resemble small computers, the appropriate analogy for estimating incremental cost would be the cost of additional memory cards.”⁷⁴ This analogy is inappropriately one-dimensional because computing power is determined not only by memory cards, but also by the speed and architecture of its processor and peripherals, size of its hard disk, as well as by the efficiency of the software algorithms installed on the computer (among other factors). A “heavy” computer user would tend to choose a higher-speed processor and opt for more efficient software packages compared to a “light” user. All of these components, much like those of the softswitch, are driven by the need for additional computing power (or the ability to manage additional calls or call-paths). Second, the Chairman’s Draft ignores other factors discussed in NuVox’s October 24, 2008 *ex parte* that further explain why large portions of a softswitch are traffic-sensitive. Specifically, NuVox explained that most of the softswitch software and portions of hardware are sized and priced based on usage characteristics, including central processing units, session border controllers, routers, and much of the intellectual property.⁷⁵ This can be established by reviewing the method by which carriers sell their softswitch-based products in the marketplace (*i.e.*, VOIP delivery). Nearly all softswitched capacity is sold in the marketplace with some voice-based constraint in mind – usually the number of “simultaneous call paths” the

⁷⁴ *Id.* ¶ 259.

⁷⁵ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration, ¶¶ 19 and 25.

purchaser requires: the higher the number of simultaneous call paths, the higher the price.

30. At ¶¶ 258-259, the Chairman's Draft further criticizes NuVox's October 24, 2008 *ex parte* analysis for using TELRIC principles. The Chairman's Draft's specific critique is that NuVox included common, land and building cost in its cost estimates of softswitch-based transport and termination cost. While NuVox does not support the Chairman's proposed additional cost standard,⁷⁶ and believes that common, land and building costs should be allocated to all cost-causing and revenue-producing services, including intercarrier compensation, NuVox points out that the Chairman's Draft fails to acknowledge NuVox's other criticisms of the AT&T softswitch analysis – these criticisms are valid even under the Chairman's Draft's proposed narrow “additional cost” standard.

31. Specifically, AT&T analysis fails to include the necessary ancillary equipment such as multiplexers, routers, application servers, policy servers, signaling gateways and session border controllers,⁷⁷ most of which are traffic-sensitive and therefore, would affect the “additional” cost of providing service “transport and termination of other carriers’ traffic.” Similarly, AT&T's analysis fails to include the necessary transport and aggregation facilities. As

⁷⁶ NuVox addresses this issue in comments filed separately in the above-captioned docket.

⁷⁷ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration ¶¶ 18-19; *see also* Windstream October 27, 2008 *ex parte*, p. 3 footnote 5 listing the additional equipment necessary to support a softswitch. AT&T October 28, 2008 *ex parte* at 3 (claiming that ancillary equipment such as routers should be excluded because it is necessary for transport (rather than termination)). Because the end point is to estimate the cost of both transport and termination, AT&T's claim is without merit.

explained in NuVox's October 24, 2008 *ex parte*, a softswitch typically serves a very large territory compared to a serving territory of an incumbent circuit switch.⁷⁸ Any cost savings achieved in switching through the use of concentrated switch architecture comes at the expense of additional transport and aggregation (collocation) facilities.⁷⁹ Again, because these costs are largely driven by traffic volumes, they are traffic-sensitive and should be included in any "additional cost" calculation.

C. THE COSTS OF TDM-TO-IP HANDOFF SHOULD BE INCLUDED IN THE COST OF TRANSPORT AND TERMINATION

32. Finally, AT&T's analysis fails to include the cost of required TDM-to IP handoffs.⁸⁰ As explained in NuVox October 24, 2008 *ex parte*, carriers are often *unable* to interconnect at the IP level because of the refusal to do so by many TDM-based carriers, including the IXC's, AT&T, Qwest and Verizon.⁸¹ Even though NuVox would prefer to interconnect on an IP-basis and pass traffic between its softswitches and the softswitches of other carriers (primarily incumbents), those incumbent carriers will not interconnect on those terms. In addition, the Chairman's Draft admits that its adoption of a 100% softswitch networks as a forward-looking standard⁸² does not imply that

⁷⁸ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration ¶¶ 39-41.

⁷⁹ A similar point is made in the Windstream October 27, 2008 *ex parte*, at 2-3, n.4: "If it [carrier] opted to aggregate traffic at a single location, backhauling traffic to a centralized location would require tremendous expense to build (or lease) the fiber needed to make this solution "as good as" a TDM Class 5 switch with 911 standalone capabilities. AT&T's simple example does not appear to represent any of the interoffice transport cost to backhaul this traffic for a centralized switching assumption."

⁸⁰ NuVox October 24, 2008 *ex parte*, Ankum, Coker and Webber Declaration ¶¶ 42-48.

⁸¹ *Id.*

⁸² This cost standard is spelled out in FNPRM, Appendix A ¶ 272.

carriers should actually be replacing fully functional circuit based switches⁸³ – a concern expressed in Windstream’s October 27, 2008 *ex parte*.⁸⁴ The Chairman’s Draft reasons that in a competitive marketplace forward-looking costs should determine the appropriate investment decisions regarding replacement of existing plant.⁸⁵ NuVox generally agrees with the last statement, but notes that neither this statement, nor the Chairman’s Draft’s determination that a softswitch is the forward-looking switching technology to be used in establishing transport and termination rates should be interpreted as a prohibition to include the cost of the TDM-to-IP handoff in the cost of transport and termination. When one set of carriers refuses to establish the necessary mechanisms by which the very forward looking network architecture envisioned by the rules must be implemented, those carriers cause costs on their interconnecting peers. Those costs – in this case costs associated with converting TDM traffic to packet traffic (*e.g.*, IP) – are true incremental costs caused by the TDM carrier and are legitimately recovered from those cost causers. Alternatively, the Commission could require that rates set under its “additional cost” standard are available only to those parties who deliver traffic to the terminating carrier in the IP format envisioned by the Chairman’s Proposal. All other traffic (*e.g.*, TDM) would continue to be terminated at prices that better reflect the costs of carrying TDM traffic. Either solution is highly preferable to the proposal inherent in the Chairman’s

⁸³ FNPRM, Appendix A ¶ 259.


⁸⁴ Windstream October 27, 2008 *ex parte*, pp. 2-3.

⁸⁵ *Id.*

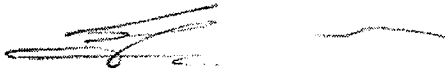
Draft, *i.e.*, that costs must be calculated based upon IP-based networks, yet carriers remain free to deliver traffic to IP-based carriers using TDM – thereafter forcing the IP-based terminating carrier to bear the costs of conversion.

IV. EXPERTS' STATEMENT

33. We declare that we created this declaration with the assistance of persons under our direct supervision and that, to the best of our knowledge, the facts represented herein are true and accurate.



Michael Starkey



Olesya Denney, Ph.D.